

Claims

We claim:

Sub a3>

1. A video classification system comprising:

5 a story segment identifier that processes a video stream and partitions the video stream into a plurality of story segments, and produces one or more key frames that are associated with each story segment of the plurality of story segments, and

10 a classifier, operably coupled to the story segment identifier, that associates one or more classifications to each story segment of the plurality of story segments, to facilitate a selection among the plurality of story segments based on the one or more classifications.

2. The video classification system of claim 1, wherein:

the video stream includes an associated text stream,

15 the story segment identifier partitions the text stream into an at least one text segment corresponding to at least one each story segment of the plurality of story segments, and

the classifier associates the one or more classifications to the at least one each story segment based on the at least one text segment.

3. The video classification system of claim 1, wherein:

the video stream includes an associated audio stream,

20 the story segment identifier partitions the audio stream into an at least one audio segment corresponding to at least one each story segment of the plurality of story segments, and

the classifier associates the one or more classifications to the at least one each story segment based on the at least one audio segment.

4. The video classification system of claim 3, wherein

the classifier includes a converter that converts the at least one audio segment into an at least one text segment and the classifier associates the one or more classifications to the at least one each story segment based on the at least one text segment.

5

5. The video classification system of claim 1, further including

a visual characterizer, operably coupled to the story segment identifier and the classifier that provides a visual characterization of at least one each story segment of the plurality of story segments based on an image content of the at least one each story segment, and wherein

10

the classifier associates the one or more classifications to the at least one each story segment based on the visual characterization.

0
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95

6. The video classification system of claim 5, wherein the visual characterizer includes

a figure recognizer that recognizes a recognized figure from a plurality of recognizable figures based on the image content, and wherein

the visual characterizer characterizes the at least one each story segment based on the recognized figure.

7. The video classification system of claim 5, wherein the visual characterizer includes at least one of: a text recognizer, a figure recognizer, and a flesh tone recognizer.

8. The video classification system of claim 1, wherein the story segment identifier partitions the video stream based on at least one of a recognized figure, a recognized scene, a video cut, and a detected commercial.

25

9. The video classification system of claim 1, wherein the one or more classifications include at least one of: program type, news type, media, person, locale, popularity, and keyword.

10. The video classification system of claim 1, wherein each story segment of the plurality of story segments include one or more scenes and the one or more key frames correspond to a frame within each of the one or more scenes.

5 11. The video classification system of claim 1, wherein the one or more key frames are determined based upon a transform of an encoding of the each story segment of the plurality of story segments.

10 12. The video classification system of claim 11, wherein the transform includes a discrete cosine transform, and the encoding is in an MPEG encoding.

13. The video classification system of claim 1, wherein the video stream is communicated from at least one of: an analog signal broadcast, a digital signal broadcast, a satellite broadcast, a cable broadcast, an Internet connection, a recorder device, and a playback device.

14. The video classification system of claim 1, further including
a storage device that stores the plurality of story segments.

15. The video classification system of claim 14, wherein the storage device is at least one of: a VCR, a DVD, a DVR, a CD-R/W, and a computer memory.

16. The video classification system of claim 1, wherein at least one of the one or more key frames
is a video clip.

17. A retrieval system for retrieving story segments of a plurality of story segments based on one or more classifications associated with each story segment of the plurality of story segments, the retrieval system comprising:

- a filter that identifies one or more filtered story segments of the plurality of story segments based on the one or more classifications that are associated with each story segment,
- a presenter, operably coupled to the filter, that sequentially presents one or more key frames that are associated with the one or more filtered story segments on a display.

18. The retrieval system of claim 17, wherein

- 10 the filter includes a sorter that associates a ranking to each story segment based on a correlation of the one or more classifications to one or more preferences, and
- the one or more filtered story segments are identified based on the ranking associated with each story segment.

19. The retrieval system of claim 18, wherein

- the presenter presents the one or more key frames in dependence upon the ranking associated with each story segment.

20. The retrieval system of claim 18, further including

- a profiler that produces the one or more preferences.

21. The retrieval system of claim 17, wherein the one or more classifications include at least one of: program type, news type, media, person, locale, popularity, and keyword.

00000000000000000000000000000000

25

22. The retrieval system of claim 17, further including

a player, operably coupled to the presenter, that presents a selected story segment of the one or more filtered story segments based upon the one or more key frames that are presented on the display at a time when a user effects a selection.

5

23. The retrieval system of claim 22, wherein the player also presents a portion of each of the one or more filtered story segments sequentially.

24. The retrieval system of claim 17, further including

10

a storage device for storing the plurality of story segments.

25. The retrieval system of claim 24, wherein the storage device is at least one of: a VCR, a DVR, a CD-R/W, and a computer memory.

26. The retrieval system of claim 17, wherein

the presenter also presents at least one of: one or more portions of an audio segment and one or more portions of a text segment that are associated with the one or more filtered story segments.

25

27. A video device comprising:

a classification device that classifies a plurality of segments of a video stream by producing a classification based on at least one of text, audio, or visual information associated with each segment of the plurality of segments, and

5 a retrieval device that facilitate a selection of an at least one each segment of the plurality of segments by matching the classification of the at least one each segment of the plurality of segments to an at least one user preference, and by presenting an at least one key frame of the at least one each segment of the plurality of segments on a display.

10 28. The video device of claim 27, further including

a player that communicates the at least one each segment of the video stream to the display based on the selection of the at least one each segment.

15 29. The video device of claim 27, further including

a storage device that stores the plurality of segments.

20 30. The video device of claim 27, wherein the video device is at least one of: a television, a set-top box, a video recorder, a computer, and a palm-top device.

25 31. The video device of claim 27, further including

a prefilter that filters a multichannel input to provide the video stream based on the at least one user preference.

32. The video device of claim 31, wherein the prefilter filters the multichannel input based on a
25 program guide.

33. A user interface for retrieving a selected segment of a plurality of segments of a video stream, comprising:

a means for rendering one or more key frames associated with one or more segments of the plurality of segments, and

5 a means for selecting the selected segment based on the rendering of the one or more key frames.

34. The user interface of claim, further including

a means for identifying one or more user preferences, and wherein

10 the means for rendering the one or more key frames includes

a means for determining a comparison between a classification of each segment of the plurality of segments and the one or more user preferences and wherein

the rendering of the one or more key frames is dependent upon the comparison.

15 35. The user interface of claim, wherein:

the means for rendering the one or more key frames includes one or more panes on the display, and

the one or more key frames associated with each of the one or more segments are displayed sequentially in the one or more panes.

20 36. The user interface of claim 35, wherein

the means for selecting the selected segment includes a means for indicating a selection of a selected pane of the one or more panes, such that the selected segment corresponds to a one of the one or more segments that is associated with the one or more key frames being displayed in

25 ~~the selected pane.~~

37. The user interface of claim, further including
a means for rendering the selected segment on the display.

38. The user interface of claim 37, further including
a rendering control for receiving render mode options, and
a means for rendering portions of each segment of the plurality of segments in dependence
upon the render mode options.

39. The user interface of claim, wherein the means for selecting the selected segment includes at least one of: a pointing device, a voice recognition system, a gesture recognition system, and a keyboard.

40. The user interface of claim, wherein the means for rendering the one or more key frames of the plurality of segments includes a multi-dimensional presentation of at least one of: the one or more key frames, one or more user preferences, and one or more user options.